

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

| | | |
|--|---|--|
| Applicant's or agent's file reference EL/2-22880 | FOR FURTHER ACTION See item 4 below | |
| International application No. PCT/EP2004/050606 | International filing date (<i>day/month/year</i>) 26 April 2004 (26.04.2004) | Priority date (<i>day/month/year</i>) 05 May 2003 (05.05.2003) |
| International Patent Classification (IPC) or national classification and IPC 7 C08G 61/12 | | |
| Applicant CIBA SPECIALTY CHEMICALS HOLDING INC. | | |

1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 *bis*.1(a).
2. This REPORT consists of a total of 6 sheets, including this cover sheet.
- In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.

3. This report contains indications relating to the following items:

- | | |
|---|---|
| <input checked="" type="checkbox"/> Box No. I | Basis of the report |
| <input type="checkbox"/> Box No. II | Priority |
| <input type="checkbox"/> Box No. III | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability |
| <input type="checkbox"/> Box No. IV | Lack of unity of invention |
| <input checked="" type="checkbox"/> Box No. V | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/> Box No. VI | Certain documents cited |
| <input type="checkbox"/> Box No. VII | Certain defects in the international application |
| <input type="checkbox"/> Box No. VIII | Certain observations on the international application |

4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis .2).

| | |
|---|---|
| The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No. +41 22 740 14 35 | Date of issuance of this report 11 November 2005 (11.11.2005) |
| | Authorized officer Ellen Moyse Telephone No. +41 22 338 89 75 |

PATENT COOPERATION TREATY

REC'D 04 OCT 2005

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From the
INTERNATIONAL SEARCHING AUTHORITY

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To:

see form PCT/ISA/220

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION See paragraph 2 below

International application No.
PCT/EP2004/050606

International filing date (day/month/year)
26.04.2004

Priority date (day/month/year)
05.05.2003

International Patent Classification (IPC) or both national classification and IPC
C08G61/12

Applicant
CIBA SPECIALTY CHEMICALS HOLDING INC.

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/EP2004/050606

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
 - ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
 - ☐ a sequence listing
 - ☐ table(s) related to the sequence listing
 - b. format of material:
 - ☐ in written format
 - ☐ in computer readable form
 - c. time of filing/furnishing:
 - ☐ contained in the international application as filed.
 - ☐ filed together with the international application in computer readable form.
 - ☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/EP2004/050606

Box No. V Reasoned statement under Rule 43b/s.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

| | | |
|-------------------------------|-------------|------|
| Novelty (N) | Yes: Claims | 2-12 |
| | No: Claims | 1,13 |
| Inventive step (IS) | Yes: Claims | 2-12 |
| | No: Claims | 1,13 |
| Industrial applicability (IA) | Yes: Claims | 1-13 |
| | No: Claims | |

2. Citations and explanations

see separate sheet

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Re Item V.

1 The following documents are referred to in this communication:

D1: WO 97/12882 A (HOECHST CELANESE CORP) 10 April 1997 (1997-04-10)

D2: US-B1-6 451 887 (WOOD ET AL) 17 September 2002 (2002-09-17)

D3: WO 02/12204 A (CIBA SPECIALTY CHEMICALS) 14 February 2002 (2002-02-14)

D4: WO 01/49768 A (CAMBRIDGE DISPLAY TECHNOLOGY) 12 July 2001 (2001-07-12)

D5: DE 26 20 970 A (CIBA-GEIGY) 25 November 1976 (1976-11-25)

2 Novelty

2.1 The claims of the present invention deal with a polymer containing the units I-IV of claim 1 and an optical device containing these polymers and the monomers V-VIII.

2.2 D1 discloses on page 11, line 5 a polymer comprising a unit which is within the ambit of unit III of claim 1. Furthermore the unit on page 15, line 30 (the third unit or monomer from the left hand side) and the PHS-BZT polymer comprising the third unit from the left hand side of the page, line 30 also is within the ambit of unit III of claim 1. Consequently, the subject matter of claim 1 lacks novelty according to Article 33 (2) PCT.

2.3 D2 discloses in example 32 a monomer according to structure VI of claim 13 of the application with the X11 being Cl.

2.4 D3 discloses in examples 72 and 73 again a monomer according to structure VI of claim 13 of the present application with the X11 being Cl or F. The subject matter of claim 13 therefore lacks novelty according to Article 33 (2) PCT.

2.5 D5 discloses substituted 2-Aryl-2H-benzotriazoles where the R1,R2,R3 and R4 can be chlorine (claim 1, D5). This means that structures V, VI and VII of claim 13 of the present invention are known from the prior art and that the subject matter of claim 13 lacks novelty

according to Article 33 (2) PCT.

2.5 None of the cited documents disclose polymers comprising the units defined in claims 2-12.

3 Inventive Step

3.1 The closest prior art is considered to be D4. In D4 electroluminescent polymers comprising a triarylene of the formula I in D4 are prepared. The difference between the invention and D4 is that no triarylene structure like in I in D4 is used in the present invention. There are no comparative examples in the present invention that could show the technical effect of this difference in technical features. Because there are no suitable comparative examples it is not clear what the effect of this difference would be and the objective problem to be solved would be to find alternative electroluminescent polymers. The solution proposed in claims 2-12 appears to involve an inventive step because it is not suggested nor disclosed in the prior art. Therefore the subject matter of claims 2-12 appears to be inventive according to Article 33 (3) PCT.

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